

Crew Resource Management

Situational Awareness

Assertiveness

Decision Making

Communication

Leadership

Adaptability/Flexibility

Mission Analysis



CRM Is For Single-S

By Maj. Sean Patak, USMC

It was Thanksgiving time for everyone at home, but in Iraq, it was just another month. The day started like any other day in OIF: I got up, went to breakfast, and headed to the squadron spaces to finish planning and brief. The XO was leading the flight; we had flown together several times before. Both of us are experienced in our airframe, the XO with almost 2,000 hours in type, and I had more than 1,200 hours. Our section of AV-8Bs would provide airborne surveillance and reconnaissance for the troops on the ground and give close-air support if required.

I had been in country almost a month, but I was a **newcomer** to this squadron. They had been doing these operations for almost three months when I joined them in theater. The flight briefs seemed monotonous after being tasked with **flying similar mis-**

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Approach



eat, Too

U.S. Marine Corps photo. Modified.

sions day after day. On this morning, though, we spent a little more time discussing emergency procedures and how much or how little tasking we would surrender to the operations duty officer (ODO) over the radio in the event we had issues. The XO methodically briefed the admin and contingencies, but he also spent some time on tactics and map study.

We started and taxied on time. When we checked in with the ODO on the radio, things were heating up out west toward the Syrian border, where we were fragged to support. The adrenaline really started to flow when we heard the section of FA-18s we were to relieve had employed all their ordnance.

We were based on the south side of Al Asad, in the Al Anbar province of western Iraq. It just so happens that the normal takeoff runway for fixed wing, the south runway, was closed for repair. As a result, we had months of excruciatingly long taxies for takeoff: a half hour or more. The taxiways and runways often were littered with large pieces of FOD, despite regular sweeping.

The safety officer thought that a piece of glass from a broken taxi light put a small cut in my left-wing-gear tire just before pulling onto the runway that morning. The tire began to deflate but so slowly I didn't notice the problem before takeoff roll. He found some witness marks at the holdshort and on the runway.

We normally performed individual takeoffs with 2,000 feet of separation on the runway for FOD avoidance. The XO had no opportunity to see anything wrong with my airplane; he never was closer than several thousand feet. The weather was CAVU as we hurried to get airborne—eagerly anticipating dropping our ordnance. My flight lead took off, and I rolled the instant he broke the deck. I noticed a drift left just after throttle slam but attributed it to the right-to-left crosswind and corrected with right rudder.


About the time I reached the short-field arresting gear, the deflated tire had had enough and shed all the remaining rubber, leaving metal on concrete. That metal-outrigger strut and rim acted just like an arresting hook and caught the wire, despite lying flat on the deck. The wing gear failed and was thrown aft with significant force into the wing and flap. I felt like I had hit lead's jet wash; I actually said that to myself in my oxygen mask. I again compensated with opposite aileron. The aircraft had tried to tell me something was wrong with subtle hints, but I was fixated on getting to the target area.

Fortunately, a section of FA-18s held short of the runway as I passed by on the takeoff roll. They told tower about the shower of sparks they saw in the vicinity of the arresting gear; they thought I had lost my tire on takeoff. The tower notified the departure controller, who told us about the problem.

My airplane showed full-up-and-locked indications on my landing gear. The indications later would show me all-down-and-locked, as well, which certainly was not true, because my wing gear was in partial trail and in pieces. Had that Hornet not spotted the incident and reported it, I more than likely would have hit the runway at 120 knots on recovery and lost control of the aircraft.

We rendezvoused, and the XO told me half of my

wing gear was “&%#@ing missing.” The quick solution that popped to mind was to do a vertical landing (VL), since I was flying a Harrier. That plan would have been great, except I had drop tanks full of fuel, a gun full of rounds, expendables, a laser Maverick, a Sidewinder, and a full tank of water. I also was showing negative VL performance. So, I would have to jettison my stores or do a roll-on landing. We coordinated the ordnance-jettison range and headed west of the field.

nce established in the delta pattern overhead the range, we decided to contact the ODO and explain my problem. There is a NATOPS procedure for “gear fails to retract,” and “gear fails to extend,” but there is [not a published procedure](#) for “the gear has partly ripped off the airplane.”

We then asked the ODO to back us up on our jettison procedures and performance calculations. We had begun dumping gas, and he made a good call to terminate dumping to allow time for the LSO to make his way to the runway. He also confirmed our selective-stores-jettison procedures and limitations. After that, however, being eager to help, the ODO began to have verbal diarrhea, trying to think through every contingency out loud and, in the process, jammed everyone else trying to talk. We decided to kick the ODO out of our cockpits for a while and switched back to our TAC frequency.

The XO made a smart call to consider dumping my water. It was not hot enough to where burning it was going to increase my VL performance, and dumping it would save me 500 pounds of weight. We then completed our stores jettison, electing to get rid of my missile, suspension equipment, and the expendables. We confirmed the LSO was on station and dumped our fuel to just what remained in the fuselage. I still would have to burn some to get to hover weight, so we used that time to lower the landing gear. We had discussed landing gear-up on the drop tanks, but I decided to try and put down the gear. If I could get at least three down, I was confident I could gently set down and balance on the good gear.


We did everything slowly and methodically, using challenge and response. We discussed the contingencies before each step, in case something went wrong. I

told him I was lowering the gear, and, once again, the airplane lied to me, telling me all the gear were down and locked. The XO confirmed my wing landing gear remained at a 45-degree-trail position. We headed inbound to the field and checked in with the LSO, who happened to be the CO. I told him of my intention to VL, my performance, and fuel remaining. I was only going to get one shot at this landing, as I would be on low-fuel flashers to be light enough for hover performance.

Once in a hover, he made an excellent call to raise the flaps to prevent them from being damaged if the gear collapsed after landing. The three of us also decided I manually would turn off my engine limiters on downwind, in case I began to run out of performance in the hover. I executed a low approach, as much to burn off more fuel as to let the CO get a look at my stricken bird.

I kissed off the XO and turned downwind for my landing. I did a normal decelerating transition to a hover, and the CO audibled my flaps up just as I came into the hover. The jet performed nicely, and I stabilized to blow clean the landing area. Once satisfied, I inched her down much more gently than the norm. I set the aircraft down on the runway as if she was a newborn baby, and, to my great pleasure, it stayed upright, balanced on three wheels. I shut down the motor and breathed a huge sigh of relief.

Communication was the key that morning. Had it not been for the situational awareness and building communications between the Hornets and the tower, my flight lead and I, the ODO, and finally the LSO, a Class-A mishap certainly would have resulted. As it was, the flaps, gear, aileron, and fairing easily were all repairable, and it [wasn't even a reportable incident](#)—I wish they had figured that out before taking 10 vials of blood from my arm.

People in our community often make the mistake of thinking that single-seat means you have to handle the situation all by yourself. We may not have someone visually verifying every switch or control movement, but we do have a crew in the other members of our section, in the ODO, and in some cases, in external agencies. Crew-resource management is for single-seat too. 

Maj. Patak flies with VMA-223.